IN THE DRAWINGS:

Please enter the attached replacement drawings Figs. 2 & 15A, with a "Prior Art" legend being added into Fig. 2, and "RESISTOR" being changed into "REGISTER" in box 21 in Fig. 15A, to replace Figs. 2 & 15A as originally filed. A Letter to Draftsperson is also submitted herewith.

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated April 4, 2007. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1, 6 and 11-12 stand for consideration in this application. Claims 1 and 6 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. A new claim 12 is being added. All amendments to the application are fully supported therein. Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

Formality Rejection

The drawings, the Title of the Invention, and the specification were objected to for informalities. Claim 6 was rejected under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the support for claim 6 is being added into page 12 of the specification.

As indicated, the drawings, the specification and the claims are being amended as required by the Examiner. Accordingly, the withdrawal of the outstanding informality rejections is in order, and is therefore respectfully solicited.

Prior Art Rejections

Claims 1 and 11 were rejected under 35 U.S.C. §102(b) as being anticipated by US Pat. No. 6,289,059 to Yamaguchi et al. (hereinafter "Yamaguchi"), and claim 6 was rejected under 35 U.S.C. §103 (a) as being unpatentable over Yamaguchi in view of an article entitled "Adaptive Partial-Response ..." by Ide (hereinafter "Ide"). Applicants have reviewed the Examiner's rejections, and hereby respectfully traverses.

The information reproducing method of the present invention, as now recited in claim 1, comprises: using a PRML (Partial Response Maximum Likelihood) method which compares readout signal levels at consecutive N times with target signal levels and selects the most likely state transition to convert the readout signal 50 (Fig. 1; the elected species) into binary data 51, by: changing said target signal levels ***adaptively*** with only asymmetry of said

readout signal levels ("*In the case of the adaptive PRML method described in non-patent literature 1 [Fig. 2], adaptation is made not only to asymmetry but also to distortion of readout signals and thus the target level changes, causing deterioration in media interchangeability. On the other hand, in the present invention, it is possible to provide a PRML-based readout method which follows asymmetry but does not follow distortion of readout signals*" p. 7, lines 2-4; "*The Technical Digest of ISOM 2002, 269-271 (2002) (non-patent literature 1) describes, as an example of application of the PRML method to optical disks, Adaptive PRML in which readout is done while the target signal level is adaptively changed to cope with a radial or circumferential disk tilt.*" p. 2, last paragraph) for quality verification of the readout signal 50 (p. 12, line 9).

The invention successfully resolves the problem of the prior art shown in Fig. 2, i.e., a failure to assure media interchangeability (p. 3 , 2nd paragraph), by changing said target signal levels adaptively with only asymmetry of said readout signal levels (but not with *distortion of readout signals)* for quality verification of the readout signal. Therefore, the invention compensates for asymmetry and assures excellent readout performance without deterioration in media interchangeability (p. 3, last paragraph). The compensation method 3 described in non-patent literature 1(Fig. 2), target level compensation also takes place for mark edge shift and thus the bit error rate does not exceed 10-4 until 2T mark edge writing shift becomes 0.4 Tw. When 2T mark edge writing shift is, for example, 0.35 Tw, in compensation method 3, the bit error rate is below 10-6 and as a result of verification the quality of signals will be judged as good, while, in a drive which uses the basic PRML method, the situation is beyond the ECC correction limit and thus a read error will occur. Consequently, no media interchangeability will be assured. On the other hand, in compensation method 1 (Fig. 1) according to the present invention, a restriction is imposed in a way that target level compensation does not follow the mark edge shift and therefore signals which are judged as good as a result of verification can be read out even in a drive which uses the basic PRML method (p. 16, last paragraph).

In the case of the adaptive PRML shown in FIG 1, the target levels for bit arrays are summation values of fixed target values and the compensated values of corresponding bit arrays. Because the compensated values are changed faithfully according to the readout signal into any values (this is the basic definition), the adaptive PRML has powerful performance for optical disk readout system.

Applicants respectfully contend that cited references fail to teach or suggest such a step of "changing said target signal levels ***adaptively*** with only asymmetry of said readout signal levels for quality verification of the readout signal" as in the present invention.

In contrast, Yamaguchi changes target signal levels only for read retry, but not for quality verification of the readout signal as the present invention. Contrary to the Examiner's assertion (p. 4, line 14 of the outstanding Office Action) that "*verification is included in the disclosed "reproduction operation,"*" Applicants respectfully contend that only "read-retry (col. 37, lines 44 & 54)" was described therein.

In addition, Yamaguchi limits said target signal levels into 4 values A+B, A, -A, and -A-B ("*"reproduced signal c(k) that does not consider noise" with an equation, states that its value is one of four values A+B, A, -A, and -A-B*" col. 10, lines 7-26) defined by two amplitude reference values A, B ("*the cited invention is directed to a PRML readout method employing two amplitude reference values (one for an address portion and the other for a data portion) for a magneto-optic disc, wherein, upon a readout retry, other amplitude reference values are used as initial values.*" Abstract), rather than into "any values (p. 12, 2nd paragraph)" as in the present invention.

The following table shows differences between Yamaguchi PR (B, 2A, B) and the Adaptive PR (1, 2, 1) of the present invention. It is clearly shows in the table that the adaptive PRML method of the present invention having the function of adaptively changing the target signal levels in response to the asymmetry in the readout signals into "any values" without restricting to A+B, A, -A, and -A-B as does Yamaguchi, which greatly improves capacity to binarize the readout signals over Yamaguchi's PRML decoder.

Yamaguchi Invention (Fig. 10, 2nd row; P. 14, 2nd paragraph)

Bit array	Target (signal) Level		Remarks	
	PR(B,2A,B)	Adaptive PR(1,2,1)		
000	-2A-2A	Any value	C000,	
001	-A	Any value	C001,	
010	A	Any value	C010,	Run Length NG
011	A	Any value	C011,	
100	-A	Any value	C100,	
101	-A	Any value	C101,	Run Length NG
110	A	Any value	C110,	
111	2A+2B	Any value	C111,	

Further, Formulae (40) to (45) of Yamaguchi in column 23 define branch metric error values bm000, bm001, ..., bm111 corresponding to the eight bit arrays (000, 001, ..., 111) within the PRML decoder. These values are the squares of the difference between the value z[k] of readout signal at time k and target levels C000, C001, ..., C111 corresponding to the eight bit arrays. This proves that, in addition to the above table, Yamaguchi's PRML decoder performs the same function as conventional PRML decoders that are incapable of adaptively changing the target signal levels into any values (without restricting to A+B, A, -A, and -A-B as does Yamaguchi) in response to the asymmetry in the readout signals.

Ide was relied upon by the Examiner teach a feature recited in claim 6. However, Ide fails to compensate for the deficiencies of Yamaguchi as discussed above.

Applicants contend that Yamaguchi, Ide, and their combination all fail to teach or suggest each and every feature of the present invention as recited in at least the independent claim 1. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

Conclusion

In view of all the above, Applicant respectfully submits that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and telephone number indicated below.

Respectfully submitted,

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